

Serial No. 09/839,941

**DRAFT**

RD-27,966

**Please substitute the following for pending Claim 1:**

[c01] 1.(Twice Amended)A photodetector (100, 200, 300), said photodetector (100, 200, 300), comprising:

a) a substrate (102, 202, 306), said substrate comprising gallium nitride grown by precipitating gallium nitride onto a crystal gallium nitride seed;  
b) at least one active layer (104, 302) disposed on said substrate (102, 202, 306); and

c) at least one conductive contact structure (106, 210, 308) affixed to at least one of said substrate (102, 202, 306) and said at least one active layer (104).

**Please substitute the following for pending Claim 59:**

[c59] 59.(Amended)A photodetector, said photodetector comprising:

a) a gallium nitride substrate, said gallium nitride substrate comprising a single crystal gallium nitride wafer grown by precipitating gallium nitride onto a crystal gallium nitride seed and having a dislocation density of less than about  $10^5 \text{ cm}^{-2}$ ;

b) at least one active layer disposed on said gallium nitride substrate, said at least one active layer comprising  $\text{Ga}_{1-x}\text{Al}_x\text{In}_y\text{N}_{1-z-w}\text{P}_z\text{As}_w$ , wherein  $0 \leq x, y, z, w \leq 1$ ,  $0 \leq x + y \leq 1$ , and  $0 \leq z + w \leq 1$ ; and

c) at least one conductive contact structure affixed to at least one of said gallium nitride substrate and said at least one active layer.